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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,511	03/12/2004	Tomoaki Hiwatashi	Q80390	6398

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EXAMINER	
ASINOVSKY, OLGA	
ART UNIT	**PAPER NUMBER**
1711	

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/798,511	HIWATASHI ET AL.	
	Examiner	Art Unit	
	Olga Asinovsky	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/19 & 9/08/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The new claims 34-38 are noted.

Claim Rejections - 35 USC § 112

1. Claims 36-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no definition for integer "n" in a (A-B)n type multi-block copolymer.

The applicants' use the phrases "a hard block A having a high glass transition point (Tg)" and "a soft block B having a low Tg." It is not clear how "a low Tg" is related to a "high Tg". The terms "high" and "low" without any limits or ranges of a Tg make an A-block and B-block indefinite.

The new search has been made in the argument about "a straight-chain" block copolymer.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 8-10, 15-16, 27, 29 and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Matyjaszewski et al U.S. Patent 5,807,937.

Claimed invention is a polymer composition comprising a straight-chain block copolymer having a unit derived from a compound having an ethylenically unsaturated bond, having a number-average molecular weight of 1000 to 1000,000, and having two or more glass transition points or melting points.

Matyjaszewski discloses a block copolymer produced from any radically polymerizable alkene and alkenyl having a straight-chain group, column 14, lines 34 and 42-61 and column 15, lines 15 and 25. The block copolymer can have a number average molecular weight more preferably at least 1,000g/mol and may have an upper weight preferably 1,000,000 g/mol, column 25, lines 13-20, for the present claim 1. The block copolymer can have the structure of di-and tri-block copolymers and having two glass transition temperatures, column 55, line 47 and column 56, line 48, for the present claims 1 and 34. The radically polymerizable alkene having the formula at column 14, line 50 wherein at least one radical R3 or R4 is carboxylic acid is readable in the present claims 2-3 and claim 4 formula (1) for being an unit=block having a hydrophilic group, see also, column 22, lines 55-64 and column 24, line 37-40. the most preferred monomers unclude N-vinyl pyrrolidone and 2-ethylhexyl acrylate, column 16, line 67 and column 17, line2, for the present claims 5,16, 27 and 29. The copolymer can be used in cosmetics and hair product applications, column 6, line 57. Matyjaszewski discloses a method for radical polymerization of alkenes, wherein a said process is based on atom transfer radical polymerization (ATRP) such that the process is controllable living/controlled radical polymerization to control the molecular weight and

polydispersity index, column 8, lines 13-17, 40-48 and 56-58. The Mw/Mn being less than 1.5 is readable in the present claim 8. The block copolymer is produced in the presence of an initiator and atom transfer radical polymerization catalyst which is a transition metal compound catalyst, column 17, lines 4-67 and column 18, lines 28-44. The transition metal compounds are readable in the present claim 10. An organic halide initiator is readable in Matyjaszewski at column 17, lines 4-67, for the present claim 10. A combination of ATRP and one other polymerization method can be used to prepare different blocks including a linear block copolymer, column 36, lines 60-62. A straight-chain block copolymer in the present claims is readable in Matyjaszewski invention for being a linear block copolymer. In addition, Matyjaszewski discloses that when the first monomer is consumed in the initial polymerizing step, a second monomer can then be added to form a second block on the growing polymer chain in a second polymerization step, column 25, lines 40-45. A multi-block copolymer can be prepared. Any additional polymerizable ethylenically unsaturated monomer(s) would be expected for producing multi-block copolymers, column 25, lines 44-45, for the present claims 34-35. Thus, a cationic monomer such as a N-vinyl pyrrolidone is readable in Matyjaszewski invention, column 43, line 7, for the present claims 15-16.

4. Claims 1-6, 14, 23-28 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 766957.

EP 766957 (now EP'957) discloses a block copolymer produced by polymerizing an ethylenically unsaturated carboxylic acid monomer and a monomer moiety of an

ethylenically unsaturated carboxylic acid ester, page 2, lines 33-37. The block copolymer having unit of the ethylenically unsaturated carboxylic acid of the formula [III], page 4, line 5, is readable for being a unit having hydrophilic group in the present claims 2-3, claim 4(1), claim 5 and claim 14. The block copolymer having unit of the ethylenically unsaturated carboxylic acid ester of the formula [IV] at page 4, line 15 is readable in the present claims 1 and 5. Each radical R3, R4, R5 and R5 of the formulae [III] and [IV] can have a straight chain, page 4, line 57 and page 5, line 6, for the present claims. Thus, the obtained block copolymer is a straight-chain block copolymer, for the present claim 1. The molecular weight of the copolymer can have a number-average molecular weight of 10,000 to 150,000, page 5, lines 23-26, for the present claim 1. The block copolymer comprises a polysiloxane segment, page 2, line 33, for the present claims 6 and 23, since the addition block polymer is within the scope of in further post-polymerization treatment. The block copolymer having two different units is a di-block copolymer having at least two different Tg, such that one unit can have a high Tg, other unit would have a low Tg since the Tg is depending on the alkyl group for radicals R3, R4, R5 and R6, for the present claim 36. The amount of the ethylenically unsaturated carboxylic acid moiety is preferably 20 to 90 wt.%. The amount of the moiety of the ethylenically unsaturated carboxylic acid ester is 80 wt.% or less, page 2, lines 39-41, and lines 24-26, for the present claim 28. The block copolymer having unit of an ethylenically unsaturated acid and other unit of an ethylenically unsaturated acid ester would inherently have two different glass transition points, wherein a "high Tg" and a "low Tg" would be readable in the present claims 1 and 36.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8-10, 15-16, 27, 29, 34-35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP766957 as applied to claims 1-6, 14, 23-28 and 36 above and further in view of Matyjaszewski et al U.S. Patent 5,807,937.

Both references have been discussed above.

EP 766957 (now EP'957) does not disclose Mw/Mn being of 2.5 or less in the present claim 8, nor a metal complex catalyst specified in the present claims 10 and 38.

Matyjaszewski discloses a halogenated initiator and an ATRP catalyst. The Mw/Mn in the range of less than 1.5 is readable in the present claim 8, column 8, lines 13-17, 40-48 and 56-58.

It would have been obvious to one of ordinary skill in the art to make a block copolymer in EP'957 by using a method disclosed by Matyjaszewski by using an organic halogenated initiator and an ATRP catalyst having a metal selected from Group VIII, Group IX, Group X (column 18, lines 36-44), since a method in Matyjaszewski invention can be applied for polymerization of any ethylenically unsaturated monomer, column 14, lines 42- 67, column 22, lines 55-67. It would have been obvious to one of ordinary skill

in the art to use an organic halogenated initiator in Matyjaszewski invention and to consider that a halogenated sulfonyl compound in the present claim 38 would be expected in Matyjaszewski invention to control polymerization process and in light of the broad definition of X radical, column 17, lines 4-67, and since each definition of radical X works within the same expectation of being an organic halogenated initiator.

7. Claims 7, 11-13, 17-22, 30-33, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 966957 as applied to claims 1-6, 14, 23-28, 36 above and further in view of Hayama et al U.S. Patent 6,123,933

EP'957 does not disclose a cosmetic polymer composition capable of forming a film wherein a said film has a Young's modulus and a fracture-point elongation specified in the present claims 11-12. EP'957 discloses the analogous chemical formulation of a block copolymer produced by polymerization of ethylenically unsaturated carboxylic acid and an ethylenically unsaturated carboxylic acid ester, page 2, lines 33-37. It would be reasonable presume to one having ordinary skill in the art that the same cosmetic polymer composition based on a block copolymer having a straight-chain and having a block of polymerizable ethylenically unsaturated acid and a block formed from ethylenically unsaturated acid ester would have the Young's modulus and a fracture-point elongation specified in the present claims 11-12, because the same composition cannot have different properties and since any number of alkyl group can be present in the ethylenically unsaturated acid ester in EP'957.

EP'957 does not disclose an addition of an amine-oxide-group-containing unsaturated monomer represented by a compound defined in the present claim 22.
Hayama discloses a hair cosmetic composition comprising an amine-oxide-containing water-soluble resin, column 2, lines 44-67 and column 3, lines 17-67, and/or a betaine-derivative as a surfactant, column 11, lines 19-21.
It would have been obvious to one of ordinary skill in the art to modify a hair cosmetic composition in EP'957 by employing an additional an unsaturated monomer such as a betaine derivative as a surfactant and/or an amine-oxide-group-containing monomer in Hayama invention as a benefit to regulate the solubility and viscosity of the block copolymer in EP'957, and since any additional polymerizable water-soluble monomer and an surfactant would be expected to improve the properties of a hair cosmetic composition in EP'957.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 7, 11-14, 17-28, 30-33, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al U.S. patent 5,807,937 as applied to claims 1-5, 8-10, 15-16, 27, 29 and 34-35 above, and further in view of Hayama et al U.S. Patent 6,123,933.

In addition to paragraph 3 above, Matyjaszewski discloses any type of structure of block copolymer, column 14, lines 32-38, produced from any radically polymerizable alkene and alkenyl having a straight-chain group, column 14, lines 42-61 and column 15, lines 13-25. The block copolymer having straight-chain of alkene units would have a linear structure. Therefore, the di-block copolymer or tri-block copolymer in Matyjaszewski invention is inherent for being a straight-chain block copolymer in the present claims. The most preferred monomers include N-vinyl pyrrolidone, methyl (meth)acrylate and 2-ethylhexyl acrylate, column 16, line 67 and column 17, lines 1-2. the block copolymer can have a hydrophilic unit and a hydrophobic unit. The copolymer can be used in cosmetics and hair product applications, column 6, line 57. Any addition polymerizable ethylenically unsaturated monomer(s) would be expected in Matyjaszewski invention.

Matyjaszewski does not disclose a film-forming article having a Young's modulus and a fracture-point elongation specified in the present claims 11-12.
Since Matyjaszewski discloses a block copolymer which can be used in a wide variety of applications, column 6, lines 45-61, it is reasonable to presume that a block copolymer can be used as a film-forming composition, wherein a formed film has a Young's modulus and a fracture-point elongation specified in the present claims 11-12, because a copolymer composition in Matyjaszewski invention can be used in cosmetics and hair products, and since the claimed Young's modulus and a fracture-point elongation are depending on the amount of the desired hydrophilic/hydrophobic polymers.

Also, Matyjaszewski does not disclose an addition of an amine-oxide-group-containing unsaturated monomer represented by the formulae in the present claim 22.
Hayama discloses a hair cosmetic composition comprising an amine-oxide-containing water-soluble resin, column 2, lines 44-67 and column 3, lines 17-67 and/or a betaine-derivative as a surfactant, and/or a silicon derivative, column 11, lines 19-21 and column 12, lines 34-35.
It would have been obvious to one of ordinary skill in the art to modify a block copolymer in Matyjaszewski invention by employing an additional unsaturated monomer such as a betaine derivative as a surfactant and/or an amine-oxide-group-containing monomer, and/or silicone derivative disclosed in Hayama invention for the purposes to control the viscosity, solubility and the desired properties for a hair cosmetic composition, because any additional ingredient can be added for formulation cosmetic composition in Matyjaszewski invention, since the addition ingredient is depending on the specified application and the intended use of said application.

In light of the new rejections this action is not final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga Asinovsky
Examiner
Art Unit 1711

O.A

*December 21, 2005

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700